

I CLAIM:

1. Muffler assembly used for a boat or vehicle,  
said muffler assembly being installed between the engine and  
the engine exhaust discharge point of said boat or vehicle,  
5 said muffler assembly having a generally permanent outer  
housing and a removable and replaceable internal core  
assembly which is inserted into and removed from said  
permanent outer housing, said muffler assembly and said  
internal core assembly having guide and positioning elements  
10 to correctly position said internal core assembly within  
said outer housing.

2. Muffler assembly as in claim 1 wherein said  
internal core assembly includes a sound reduction element  
and/or a filter element to reduce sound emanating from said  
15 engine and to reduce engine contamination from said  
discharge of said muffler assembly.

3. Muffler assembly as in claim 1 wherein said  
internal core assembly includes only sound reduction  
elements.

4. Muffler assembly as in claim 2 wherein said internal core assembly includes only filter elements.

5. Muffler assembly as in claim 1 wherein said internal core assembly includes filter and sound reduction elements.

6. Muffler assembly as in claim 1 wherein said guide and positioning elements include an exhaust entry pipe and a complementary female pipe adapted to fit with said exhaust entry pipe.

10 7. Muffler assembly as in claim 1 wherein said internal core assembly includes a backing plate and wherein said backing plate forms a sealing relationship with said housing.

15 8. Muffler assembly as in claim 7 wherein said sound reducing element and/or filter element is connected to said backing plate.

9. Muffler assembly as in claim 8 and further comprising a threaded connection between said internal core

assembly and said housing.

10. A replaceable internal core assembly for a muffler assembly, said internal core assembly being removable from said muffler assembly and comprising at least 5 one sound reducing element and/or at least one emission reduction element, a sealing plate adapted to engage with said housing and to form a seal between said housing and said internal core assembly and means to guide said internal core assembly into said housing and to maintain said 10 internal core assembly in a removable relationship with said housing.

11. An internal core assembly as in claim 10 wherein said means to maintain said internal core assembly within said housing is a threaded connection.

15 12. A replaceable internal core assembly for a muffler assembly, said internal core assembly being removable from said muffler assembly and comprising at least one filter element, a sealing plate adapted to engage with said housing and to form a seal between said housing and 20 said internal core assembly and means to maintain said

internal core assembly in a removable relationship with said housing.

12. A replaceable internal core assembly for a muffler assembly, said internal core assembly being  
5 removable from said muffler assembly and comprising at least one emission reduction element, a sealing plate adapted to engage with said housing and to form a seal between said housing and said internal core assembly and means to maintain said internal core assembly in a removable  
10 relationship with said housing.

13. Internal core assembly as in claim 11 wherein said internal core assembly further includes a tailpipe extending from said sealing plate for emitting said engine exhaust.

15 14. Method of installing a replaceable internal core assembly within a muffler assembly having a housing comprising the steps of inserting said replaceable internal core assembly through an opening in said housing, correctly positioning said internal core assembly within said housing and sealing said internal core assembly with and retaining  
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said internal core assembly within said housing in a removable relationship with said housing.

15. Method as in claim 14 wherein said internal core assembly is correctly positioned within said housing 5 using guide means on either of said housing or said internal core assembly.

16. Method as in claim 15 wherein said guide means is a pipe.

17. Method as in claim 14 wherein said internal core assembly is retained in said housing with a threaded connection. 10

18. A cartridge for insertion into a muffler casing, said cartridge containing at least one exhaust treatment element and being sealed prior to installation in said muffler casing, said cartridge containing an entrance 15 for the ingress of exhaust from an engine and an exitway for the egress of said exhaust following treatment of said exhaust within said cartridge.

19. A cartridge as in claim 18 wherein said cartridge is enclosed by a gas tight enclosure.

20. A cartridge as in claim 19 and further comprising retention means to secure said cartridge within  
5 said casing during operation of said engine and entry of exhaust from said engine into said cartridge.

21. A cartridge as in claim 20 wherein said at least one treatment apparatus comprises a catalyst acting on said exhaust.

10 22. A cartridge as in claim 20 wherein said at least one treatment apparatus utilises power applied to said cartridge.

15 23. A cartridge as in claim 20 and further comprising an end cap to secure said cartridge within said casing and to act on said cartridge during operation of said cartridge and casing.

24. Method of treating exhaust emanating from an engine comprising inserting a cartridge into a muffler

casing, allowing said exhaust from said engine to enter said cartridge, treating said exhaust within said cartridge to remove environmentally objectionable materials from said engine exhaust and allowing said treated exhaust to pass  
5 from said cartridge.

25. Method as in claim 24 wherein said exhaust is treated by a catalyst within said cartridge.

26. Method as in claim 25 wherein said exhaust is further treated by high voltage within said cartridge.